

WHAT IS CLAIMED IS:

## **CLAIMS**

1. In a digital communication system, a method for receiving OFDM signals originating with disparate sources, said method comprising:

receiving a series of time domain OFDM bursts originating with said disparate sources;

converting said series of time domain OFDM bursts to a series of frequency domain OFDM bursts; and

applying an error correction decoding process to each of said series of frequency domain bursts to ameliorate effects of transmission errors, wherein each of said frequency domain bursts is considered to have been encoded independently, and wherein decoding results for a selected one of said frequency domain bursts are independent of contents of other ones of said frequency domain bursts.

2. The method of claim 1 wherein said error correction decoding process comprises a convolutional decoding process.

3. The method of claim 1 wherein applying said error correction decoding process for said selected one of said frequency domain bursts comprises:

feeding said selected one of said frequency domain bursts as input to said error correction decoding process; and thereafter

feeding a series of predetermined values as input to said error correction decoding process to reset an internal state of said error correction decoding process prior to input of a next one of said frequency domain bursts.

4. The method of claim 1 wherein said error correction decoding process for said selected one of said frequency domain bursts comprises:

feeding said selected one of said frequency domain bursts as input to said error correction decoding process; and thereafter

resetting an internal state of said error correction decoding process prior to input of a next one of said frequency domain bursts.

5. The method of claim 1 wherein said series of OFDM time domain bursts are obtained from successive TDMA frames.

6. The method of claim 1 wherein said series of OFDM time domain bursts are received via a plurality of carrier frequencies.

7. The method of claim 1 wherein applying comprises employing a depuncturing pattern that varies between ones of said frequency domain bursts to accommodate disparate code rates employed by said disparate sources when encoding said OFDM signals.

8. In a digital communication system, a method for transmitting an OFDM signal from a network node, said method comprising:

collecting data bits to be transmitted;

feeding said data bits as input to an encoding process; thereafter

feeding flush bits as input to said encoding process, said flush bits having predetermined values to facilitate decoding;

developing a frequency domain burst incorporating output of said encoding process caused by input of said data bits input of said flush bits to said encoding process;

converting said frequency domain burst into a time domain burst; and

transmitting said time domain burst.

9. The method of claim 8 wherein transmitting comprises transmitting within a TDMA frame reserved for transmission by said network node.

10. The method of claim 8 wherein transmitting comprises transmitting via a carrier frequency reserved for said network node.

11. The method of claim 8 wherein said encoding process comprises a convolutional encoding process.

12. The method of claim 8 wherein said encoding process comprises a trellis encoding process.

13. The method of claim 8 wherein said frequency domain burst further incorporates training symbols.

14. The method of claim 8 wherein a number of said flush bits is one less than a constraint length of a convolutional encoder.

15. In a digital communication system, a system for receiving OFDM signals originating with disparate sources, said system comprising:

a converter that converts a series of time domain OFDM bursts received from said disparate sources to a series of frequency domain OFDM bursts; and

a decoder that applies an error correction decoding process to each of said series of frequency domain bursts to ameliorate effects of transmission errors, wherein each of said frequency domain bursts is considered to have been encoded independently, and wherein decoding results for a selected one of said frequency domain bursts are independent of contents of other ones of said frequency domain bursts.

16. The system of claim 15 wherein said error correction decoding process comprises a convolutional decoding process.

17. The system of claim 15 further comprising an input that feeds said selected one of said frequency domain bursts as input to said error correction decoding process, and thereafter feeds a series of predetermined values as input to said error correction decoding process to reset an internal state of said error correction decoding process prior to input of a next one of said frequency domain bursts.

18. The system of claim 15 further comprising an input that feeds data from said selected one of said frequency domain bursts as input to said error correction decoding process, and thereafter resets an internal state of said error correction decoding process prior to input of a next one of said frequency domain bursts.

19. The system of claim 15 further comprising a receiver system that receives said series of received time domain OFDM bursts.

20. The system of claim 15 wherein said series of OFDM time domain bursts are obtained from successive TDMA frames.

21. The system of claim 15 wherein said series of OFDM time domain bursts are received via a plurality of carrier frequencies.

22. The system of claim 15 further comprising a depuncturing block that applies a depuncturing pattern to input to said decoder, said depuncturing pattern varying among OFDM time domain bursts to accommodate disparate code rates for said disparate sources.

23. The system of claim 22 wherein said decoding block comprises a Reed-Solomon decoder and wherein said depuncturing block marks a portion of a parity segment of a Reed-Solomon codeword as a series of erasures.

24. In a digital communication system, a system for transmitting an OFDM signal from a network node, said system comprising:

an encoder that receives data bits as input and thereafter receives flush bits as input, said flush bits having predetermined values to facilitate decoding, and that develops contents of a frequency domain burst as output based on said data bits and said flush bits; and

a converter that converts said frequency domain burst into a time domain burst.

25. The system of claim 24 further comprising a transmitter system that transmits said time domain burst within a TDMA transmission frame reserved for said network node.

26. The system of claim 24 further comprising a transmitter system that transmits said time domain burst on a carrier frequency reserved for said network node.

27. The system of claim 24 wherein said encoder comprises a convolutional encoder.

28. The system of claim 24 wherein said encoder comprises a trellis encoder.

29. The system of claim 24 wherein said frequency domain burst further incorporates training symbols.

30. The system of claim 27 wherein a number of said flush bits is one less than a constraint length of said convolutional encoder.

31. In a digital communication system, a system for receiving signals originating with disparate sources that have encoded said signals with varying amounts of redundancy, said system comprising:

a receiver system that receives encoded data originating with said disparate sources; and

a decoder that decodes said encoded data serially by source, varying a degree of redundancy removed in decoding depending on which source originated currently processed encoded data.

32. The system of claim 31 wherein said decoder comprises a convolutional decoder.

33. The system of claim 32 wherein erasures are inserted at an input of said decoder in accordance with a puncture pattern that varies by source.

34. The system of claim 31 wherein said decoder comprises a Reed-Solomon decoder.

35. The system of claim 34 wherein certain parity bytes are marked as being in error at an input to said Reed-Solomon encoder to implement variable redundancy among sources.

36. The system of claim 31 wherein said encoded data is extracted from TDMA frames, each of said TDMA frames originating with one of said disparate sources.

37. The system of claim 31 wherein said encoded data is received via multiple carrier frequencies corresponding to said disparate sources.